

An inaugural dissertation on Pneumonia
Typhoides or the winter epidemic as it appeared
in Washington county Virginia in 1818 & 1819
with a sketch of the climate.

To be submitted to the trustees &
Faculty of Medicine in the
University of Pennsylvania
For the degree of Doctor of Medicine.
By Mitchell Tate of Virginia

Read March 19th 1823

March 10th 1823

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Virginia is bounded on the south, by a line on the parallel of $36^{\circ}30'$ N. E. The country of Washington touches this line. The town of Abingdon, situated near the centre of the county, about sixteen miles north, of the southern boundary of the county, and about the same distance, from the northern boundary of Tennessee. It is thus placed in the southernmost border of the state. On the north & south, the county is bounded by mountains of great elevation; on the north by the great Clinch mountain, on the south by the Iron, of white top. The elevation of the last, is so great, that no trees, or shrubs grow on or near its summit. These great mountains run nearly parallel to each other, their general course is, from north east to south west. They are distant from each other about twenty miles. The country of Washington is a great valley placed between them: This valley is watered by the three branches of the Holston. They are called the south, middle, & north, branches or forks, taking their sources from the west side, of what is called, a descending ridge, separating the head waters, of the Holston, from New river, or Kanawha. The others from the east side, run to the great Kanawha. The branches of the Holston take their rise, to the east of the county, from numerous springs, situated in the valley. The

tributary streams of cool fresh, are divided from the others, on elevated ridges. They take a course towards the south west, gradually converging. The south, & middle forks, unite, in the county about seven miles south of Abingdon. The north fork unites with the others, in the state of Tennessee, & forms the Holston river, which goes on to meet the Tennessee river. The general aspect of the county is hilly. The soil is placed on a bed of lime stone, & consists of rich mould & clay. Springs of lime stone water are very abundant. The margins of the streams have a large portion of rich bottom land: the soil generally is good, & well calculated for the production, of grass, clover, & bread stuff of every kind. The face of the country, which has not been cleared, is richly covered, by large & beautiful forest trees, & a rich variety of plants, many of which are well known to the botanist. This county is in a very elevated situation, being near to the Alleghany mountain, & looking towards the great valley of the Mississippi: distant from the gulf of Mexico, more than one thousand miles, & 400 miles from the eastern seaboard. This elevation connected with the general mountainous character of the country, has a very great influence on the climate. In such a situation we are to expect sudden & great vicissitudes of temperature. We have frost, occasionally in ^{early} ~~the~~ months, except those of the summer.

snow is not unfrequently seen on the mountains, early in October, & may. No meteorological observations have been made in that country that I know of. It is therefore impossible for me to give an accurate statement of the mean temperature of the atmosphere. The thermometer ranges, during the summer months at a school, between 55° & 85° of Fahrenheit's scale; & I have seen it as high as 89° . This continues to be agreeable, & even necessary until the middle of June, in the morning, & evening, & indeed throughout summer; when there is much rain. A great deal of which falls every year. Vegetation generally commences early in March, but is frequently checked, by frost & snow. About the middle of April, the fruit trees are in full bloom, & before the last of May the forest trees are covered, with foliage more than half grown; early in June they are fully developed, when the whole country, presents an extremely luxuriant appearance, beautifully variegated, by the difference of productions on the mountains, & in the valley. The summer months are tempered with a delightful breeze from the northern mountains, which are of great extent between that country & the sea. The fall months are very pleasant & about the 1st of November; on the decline of the leaf, this country exhibits in perfection, all those beauties, which have been so much spoken

of ..

of, arising from the various tints of color, produced by the differ-
ently states, of decline in the foliage. The winter usually commen-
ces, about the middle of December: & is marked throughout by great
vicissitudes of temperature. Occasionally the whole country is
frozen, & the weather extremely cold. But these spells of cold,
are generally of short duration, terminating in a thaw, with all
its consequences of mud &c. I have never had it in my power to make
the greatest descent of the mercury, during our coldest weather: There
is but little snow during the winter, but much rain clearing
off with a keen north-east wind. The winter is decidedly the most
sickly season, producing catarrh, pleurisy, rheumatism & other
inflammatory affections. These diseases continue worse off during
the spring: Cholera infantum is frequently met with in the same
season of a mild character. Dysentery, is also, very common, occasi-
onally epidemic. This disease is seldom fatal & scarcely ever requires
the lancet: the inflammation being moderate. Intermittents are un-
known. Remittents are common, in August & September, in cer-
tain situations, apparently produced, by local sources of miasmata.
The disease is generally very easily managed, by the common reme-
dies. Pulmonary consumption has become very common,
probably

probably owing to the great vicissitudes of temperature - Scrophula
is almost unknown - Gout is frequently met ^{with} in this mountainous
district - Gynonche triachalis, is very raremet met, I have not
^{seen} 10 cases in a practice of 15 years - Disease of the liver is not often
seen but as a consequence of the use of ardent spirits. Scandiac was
Spodumene about Abington in 1810 & was of a very mild character.
I have seen but a single case of calculus in the country.

I might go on to enumerate many more diseases met with in that
country but deem it unnecessary to say more on the subject.

I will now give a slight history of the winter Epidemic, as it
appeared in my practice in the years 1818 & 19.

This disease made its first appearance in Washington county early in
January 1818, During a spell of very cold weather. The first case was that
of a young man about 20 years of age, a blacksmith, of strong & robust con-
stitution. He complained at first of dulness, lassitude, & soreness of all
the muscles, with distressing, aching, of the whole body, with chilli-
ness; which was soon followed by fever, with pain in the head and
side, & considerable nausea. When I first saw him he had been unwell
two days. He had been bled once & had taken a dose of salts. He com-
plained now very much of his side & could not take a full inspiration,

without any acute pain; his pulse full, strong, & frequent; skin,
very hot, breathing, difficult, with some cough, tongue loaded & tongue
yellow, countenance disturbed & heavy. Without hesitation, I took from
his arm more blood, about 15 $\frac{1}{2}$. He became sick & weak from the
evacuation with some relief to his head & side. He did ^{not} recover sud-
denly from this state, as persons usually do who have a tendency to syn-
cope; but remained sick & full for a considerable time. The force of
his pulse was greatly reduced & he continued to have much of pain.
That night he took 10 grs of calomel, its operation to be aided by an
infusion of scum. A large blister was applied to his side his counte-
nance continuing dull, & heavy. I saw him the next morning; the
medicine had operated very well, ~~bringing~~ ^{& brought} away, a great deal of dark
matter. The blister had drawn well, & the pain in his side was consi-
derably relieved. He continued sick at the stomach, countenance dull,
skin not so hot, pulse frequent, but not strong - I now gave him an
emetic, with an expectation that it would relieve his stomach & the
dull appearance of his countenance. Soften, & relax his skin, preparing
the way for diaphoretics. The medicine operated antemortally, operated
five or six times, throwing off large quantities of bile, & mucus. I saw
him very soon after the operation of the emetic, he said he was much
better.

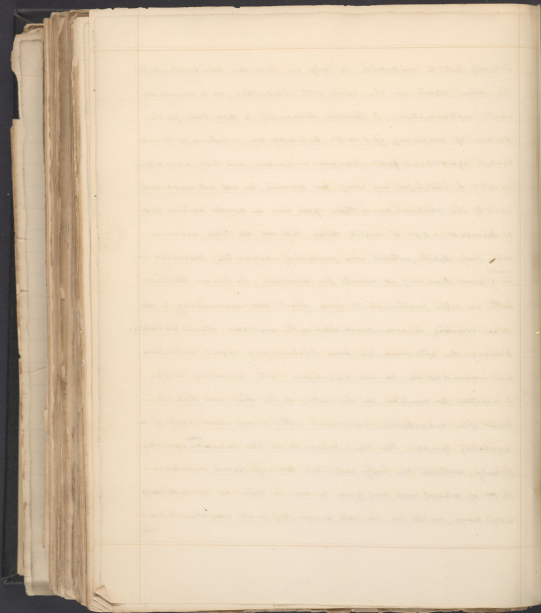
Indeed he appeared wholly relieved. his countenance lively & rather
excited with pleasure, his stomach well, pain of the side, & head,
nearly gone. He wished to eat. a cup of weak tea was allowed
him - I returned home, but had been there but a very short
time when I received a note, requesting me to visit him again.
I found him perfectly delirious, with a very frequent, weak pulse;
skin rather cool, & extreme flabbiness of the muscles, with ^{total} want
the power of deglutition. In this hopeless condition I applied
a large blister to his head; & others to the neck, & scapular
to the feet. If he could have swallowed I would have given the
carbonate of ammonia & wine very freely. He lived until the
next evening. I was not permitted to examine the body post
mortem. The winter passed over, without my seeing any other
violent case of the disease. It was seen frequently but in a much
milder form, yielding to emetics, purgatives, & Dover's powder,
with lepid drinks; & occasionally in protracted cases calomel, in
conjunction with the sublimed powder, was given, until dys-
pnoea was produced. The spring was very cold dry & windy, and
still late in April - I was again sent for to see the brother of the
young man, whose case I have given. He was attacked with a severe
chill

chill, & acute pain, low down in the left side of the chest. In this case, perfect reaction had taken place, and the usual symptoms, of high inflammation, ^{action} existed, strongly marked. Active depletion was promptly used: 20z of blood were drawn off in the course of 5 hours, but without affording any thing but temporary relief. His pulse was not subdued, or the pain much relieved. I believed at the time that this was a case of pleuritis, & left the patient after giving a purge, with directions to take more ^{blood} at short intervals, until the pain gave way. A large blister was directed to be applied to the side & the antimonial powder to be used. The bleeding was not repeated as directed. He died on the fifth day, with scalled abdomen, heavy & laborious respiration, rattling of mucus in the bronchia, irregular pulse; in short with all the symptoms, indicating effusion, into the cavities of the chest & abdomen. He had been occasionally delirious. His pulse continued active until an hour before his death; The pain was not relieved until effusion had taken place. A few days after this I was called to the same neighborhood to see a young man; a waggoner, he was lean & thin but hardy & strong, when in health. He had for

for a few days previous ^{to his violent} attack, complained of the ordinary symptoms of catarrch. He was suddenly taken with a chill, which was speedily followed by reaction & fever, with acute pain in the side, & head-ache, with difficult & painful respiration, so much so that he could scarcely talk. Skin very hot tongue white, pulse choked or tense, beating 100 in the minute, his face expressing great suffering & dejection. He ~~had~~ been in this condition 8 or 10 hours before I saw him. During this time his mother had endeavored to relieve him by placing his feet in warm water, & administering warm tea, & applying hot salt to the chest, she also used corn, boiled in water & placed hot around his body, for the purpose of producing sweat, but without success. This situation became insupportable from the increase of heat & pain. I felt some embarrassment, from the bad success, which had attended depleting remedies, in the two preceding cases, and was very anxious, to resort to emetics, & sudorifics for his relief, as those remedies had been so much praised by some, as remedies, for this most relentless disease. pretty active measures to produce a flow of sweat, had been tried, without effect. Before me were all the symptoms, which indicate, a true inflammation, of a serous membrane, covering parts essential to life,

life.

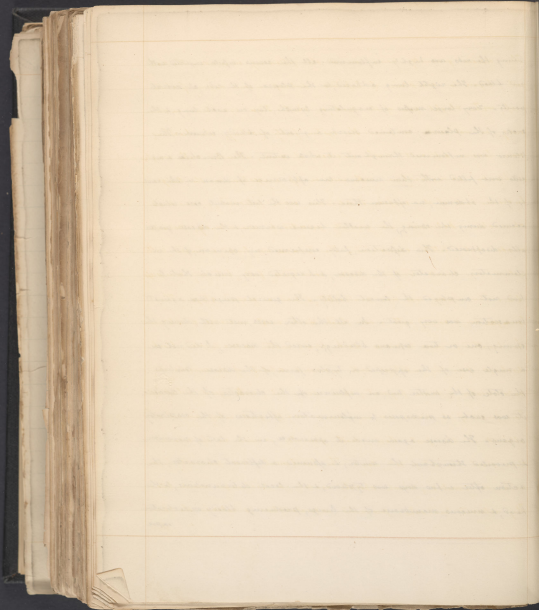
I really felt it impossible, to rely on remedies, comparatively fe-
ble, when placed in the scale with bloodletting; as a remedy for
acute inflammation. I therefore determined to draw blood, for the
purpose of procuring, if I could, a temporary resuspension, of the more
violent symptoms. I put a ligature on his arm and took away a large
quantity of blood, before any relief was procured, he was not much weak-
ened by the abstraction. I then gave him in divided portions 24 grs
of Spicaean, & 3 grs of emetic tartar, this was all taken, and warm
water freely drunk, without even producing nausea. The Spicaean was
repeated in 5 grain doses every 10 minutes for sometime; the patient touched
with an oiled feather, but every effort was unavailing, to pro-
duce vomiting, or even perspiration; the medicine opened his bowels.
During the afternoon his pain became very urgent, pulse tense
and incompressible; he was bled again, with temporary relief.
I omitted to mention in the history of the other case, that the
blood after coagulation, was covered with a very dense coat of co-
agulating lymph. The blood drawn from this man ^{was} coagulated
firmly, without the buffy coat, but was very florid, and dense.
15 grs of calomel were now given to him, & castor oil in small doses,
every hour, until he was fully purged. 3j of oil was taken before
this



this effect was produced. A large blister was next applied to the
throat. He passed a sleepless night, as was very common in such
cases. The blister drew well, but produced very little relief. He was
again bled, & the antimonial powder freely given, with tepid drinks.
The polygala senega was also given in infusion, & the boiled corn
again used. But without any other effect, than that of increasing
his suffering. I have always found it next to impossible, to induce
sweating, when a hot skin, & strong arterial action, are present, by any
other means, than cold water, internally & externally used. The ex-
ternal application here would have been highly improper. The tepid
bath might have been useful; no convenience for using it
was at hand. This man was bled six times in all, eighty ounces of
blood was probably taken. And every auxiliary measure used that I
knew of, to relieve him, but without effect, he died on the 7th
day of his disease. He was not delirious, his pulse continued active
until a few hours before his death. The usual signs of effusion in
the throat, were strongly marked. A cold perspiration took place
after symptoms of effusion existed. A fourth case occurred in
the same neighborhood: & as I examined the body post mortem,
I will give the facts. This was a very stout young negro man in the
mid

had complained of being unfit for labor, for a few days, before he was
 taken down. His attack was ushered in with a chill, reaction soon fol-
 lowed, & high fever continued, with acute pain of the right side, quick,
 & very difficult respiration, attended with great anxiety, a frequent
 tense pulse, & white tongue. He had been bled & taken a dose of salts be-
 fore I saw him, with^{out any} mitigation of symptoms. I drew from ^{him} 20 $\frac{1}{2}$ of
 blood, & again tried the emetic; given in divided portions, and carried to
 a large quantity, with all the auxiliary means, to provoke emesis; but
 without effect. His bowels were moved by the emetic art. obs. Arte-
 rial action continuing, very strong, he was again bled 16 $\frac{1}{2}$, &
 20 grains of calomel given, to be followed, by a solution of Gloubers
 salt. As the blister in the preceding cases had been useless, I did
 not use it in this case. The next morning he was no better, more
 blood was taken, to procure some ease for him, & the antivenereal powder
 given, with tepid drinks. In the afternoon he became delirious,
 pulse small & very irregular, breathing oppressed, abdomen tumid,
 I considered these symptoms fatal, & nothing more was attempted.
 He died in the night, 3 days after the attack. The next day the body
 was examined. On opening the thorax, the lungs appeared distended,
 protruding from the opening, The pleura covering the lungs & lining
 living

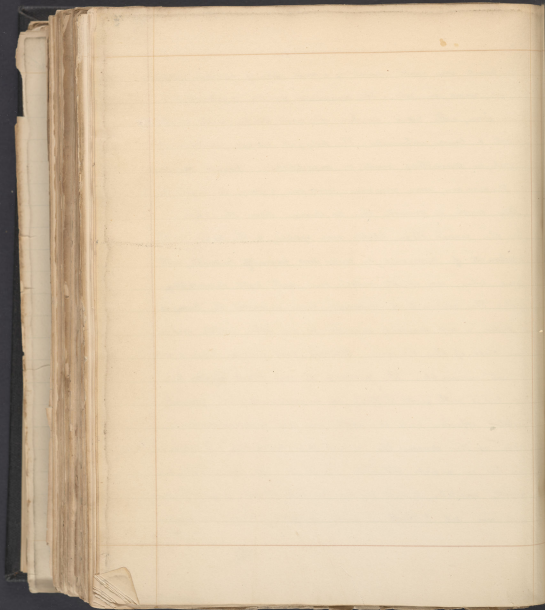
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lining the ribs was highly inflamed: all the serous vessels injected with
red blood. The right lung adhered to the pleura of the ribs, at several
points. Very large masses of coagulating lymph, lay on each lung, & the
sacks, of the pleura, contained nearly a quart of bloody serum. The
pleura was inflamed throughout its whole extent. The Bronchia & air
cells were filled with thin mucus: no appearance of disease in the cav-
ity of the abdomen, no effusion there. This was the last violent case which
occurred during the spring, the weather became warmer, & the disease gradu-
ally disappeared. This disposition, fully confirmed my opinion, of the in-
flammatory character of the disease, & I regretted very much that I
had not employed the lancet boldly. The general prejudice against
venesection was very great. In all the other cases, met with, during the
spring; one or two copious bleedings, cured the disease, I did not see
a single case of the apyrexial, or typhoid form, of the disease, perhaps
the state of the weather had an influence on the character of the disease.
It was such as predisposes to inflammatory affections of the respiratory
organs. The disease again made its appearance, in the last of November,
& prevailed throughout the winter, & assumed a different character, the
action after a few days was typhoid, & the local deliriums, to the
head, & mucous membrane of the lungs, producing bloody expectoration.
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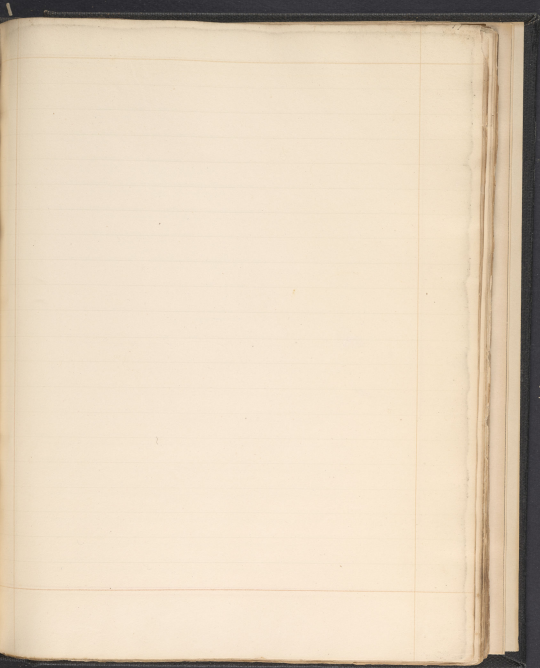


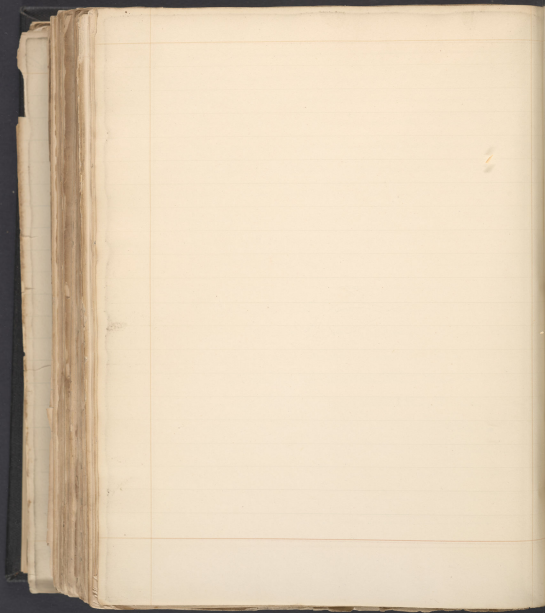
The disease generally came on in the following manner - The patient, began to complain, of lassitude, dulness, & some degree of chilliness, with slight pain of the head, or chest. These symptoms, increasing, he was soon confined. The system fully reacting, the breathing soon became difficult, with increase of pain, attended with coughs & bloody expectoration, with more or less congestion in the lungs. Increased heat of the surface, & delirium, soon followed, of moderate character. Delirium was generally preceded, by somnolency. Patients made but little complaint. The tongue was loaded, & tinged, with yellow, the bowels torpid, pulse, sometimes full, but very compressible. The disease was now protracted, & had a second stage. The tongue dry, & covered with a very thick dark crust, increase of delirium, the breathing more laboursome, dark bloody matter exspectorated, black discharges from the intestines, with increased debility of the muscles, the pulse weaker, & more frequent, skin dry & hot, with great restlessness. This form of the disease was very dangerous, & if great relief was not obtained in the first stage, death generally occurred in the second stage, about the 8th or 10th day. The treatment was generally begun with an emetic, which operated readily, & discharged much bile. It relieved head ache, promoted expectoration, & relaxed the skin,

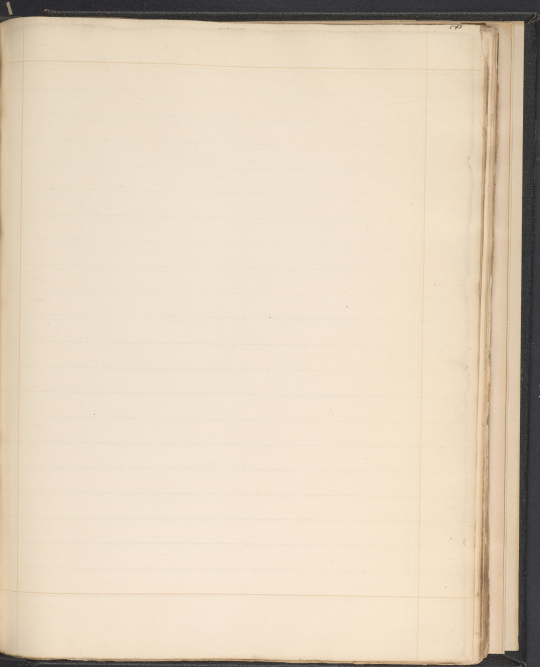
skin

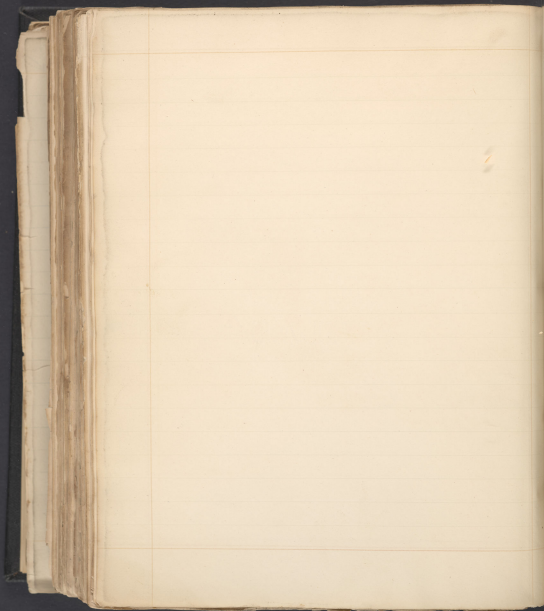
The bowels were next opened, by a large dose of calomel, followed by oil, rhubarb, or castor. The antimonial powder, & calomel, were now given, with tepid drinks afterwards blisters, to the neck, chest, & lower extremities. The pectorale coraga, was here very useful, in promoting sweat or expectoration. Opium camphor & Musciv, were sometimes combined, & given at night, to allay cough, & promote the discharge from the skin. In the second stage, blisters were applied, to the head, & the carbonate of ammonia, in large doses, frequently repeated, with some delay, was chiefly relied on, with light stimulating food. The carbonate of ammonia, soon improved the tongue & pulse, & was decidedly superior, to any other article, used in this stage of the disease. Plastered parts, became livid, & were almost insensible. The discharge of very black matter from the lungs, with great stuffiness, or engorgement, was generally fatal. Effusion onto the chest, was very uncommon, in this stage of the disease. The serous membranes did not appear to be so much affected. Hoarse or less, congestion, constantly excited. I could go on to protect this story with many more cases but I think it quite unnecessary to say more on the subject.











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